McGILL UNIVERSITY LIBRARY

Fishes of Ungava Bay and Region.

by

L.M. Turner.

ORB
T853

PRESENTED TO THE LIBRARY
BY

Dr. M.J. Dunbar.

McGILL
UNIVERSITY
LIBRARY

FISHES

Pleuronectus americanus.

These fishes are extremely abundant in certain localities along the Labrador coast. They were common at Rôgolet and very abundant at Davis' Inlet. They frequent the sandy coves where the water is shallow, moving toward the shore as the tide rises and retreating as the tide falls. In a small cove a few miles from the station of Davis' Inlet I secured forty-nine of these fish by spearing them. The Eskimo dogs search for these fish and feel them with their paw. When one is discovered the dog remains motionless with his foot on the fish; then puts his head under the water and seizes it, carrying it to the shore to eat it. I saw an old dog teaching her pups to fish in this manner at Rigolet. She was known as an expert fisher and on one occasion I saw her obtain three fish each of which was seized by the pups while she held her foot on it. She conveyed the intelligence of the capture of the fish to her pups simply by a look upon which the pups went galloping through the water to her.

I did not discover this species in Hudson Strait.

The individuals procured at Rigolet were dull blackish-brown above, beneath yellowish-white. Fins above grayish with yellowish edging; lower side of fins reddish-yellow. Irides hazel brown with minute dark specks.

Those taken at Davis Inlet July 17th were brownish-drab to dull dusky brown. Beneath they were yellowish to white; fins yellowish with a shade of pink on the lower surface and nearly the same as the back on the upper surface.

No species of Pleuronectes was obtained from Hudson Strait.

Pleuronectes glaber

A single individual of this species was taken at Rigolet, July 4, 1882, with a hook. This fish was among a number of P. americanus taken at the same time.

Nothing of their habits were learned by me.

Boreogadus saida.

During the latter part of July and the first five days of August 1882 the steamer "Labrador", on which I was journeying to Ft. Chimo, was detained amidst immense fields of ice. In order to pass the tedium of the voyage those who had opportunity ran about the larger cakes playing at snowball or diverting themselves as fancy suggested. I had observed small fishes at various times, but could secure none. The vessel would endeavor to push the fields of ice aside to make way for herself. In striking some of the smaller cakes the force would, at times, completely turn over the mass of ice and from the turmoil of water thus produced I perceived these fishes to be numerous. I affixed a longer handle to

the dipnet and the carpenter kindly undertook to catch some of the fish for me. The creatures were visible for only an instant and one had to be on the alert to seize them. After many unsuccessful attempts a large specimen was secured; and, soon after others. None were of more than three inches in length. Twelve individuals were obtained. They lived but a moment out of the water, a mere quiver and life was gone. I do not remember to have seen colors on fishes to be so brilliant as were shown on these. The palest olive green above; brilliant purple reflections of everchanging hue on sides of silvery white and pure silver white on the lower parts. These colors so constantly undergoing changes that the sides were scarcely half a second of time the same color. The iris was silvery white for the upper half and bronze color below the pupil. The lower half was more distinctly colored for a couple of minutes when freshly put in alcohol while the reflections on the sides faded instantly to become a dead, lustreless white.

During the time that the ice-floes surrounded the vessel, fogs and calms prevailed and during the nights heavy ice, sometimes an inch in thickness, was formed. The extremely high tides, which prevail in Ungava Bay, where these fishes were obtained, caused increasing changes in the position of the floes among which the Polar levels were taken.

Gadus ogak

The Greenland Cod is quite plentiful along the Labrador coast and as far within the Hudson Strait as the mouth of George's River. At the latter place they are, however, quite rare, oftener seen dead than alive. They are occasionally found with their livers cut out by the seals, which catch them, and the bodies are thus cast on the ice or shore. It was related to me that a single one had been taken, several years ago, quite near the mouth of the Koksoak River.

These Cod are termed "Rock cod" and "Tom cod" by the people of Labrador. They frequent the shoal water near the shore and prefer the rocky places where an abundance of seaweed is to be found. They bite readily at the hook and are taken in good numbers. They are used but little by the people as the larger cod is too abundant in its season to afford much time to be wasted on these small fishes for they rarely attain a length greater than eighteen inches. The flesh is not so firm and has a flavor of mustiness that is not agreeable.

The larger individuals are black with fine grayish-brown, sparse dots on posterior portions. Abdomen but slightly lighter. Younger specimens are light brown with profuse, dark mottlings; fins much darker than the ground-color of the body. Irides dull coppery. The more northern specimens are lighter than those taken at Rigolet; and are blackish with brown and whitish, small dots, irregularly disposed over the back and more plentiful on sides. The abdomen paler . There

is such a great difference in the colors of individuals taken even successively on the hook that it is almost impossible to give more than a general description of the colors. I made no attempts to collect specimens of Gadus morrhua which is well known to be so abundant along the coast of Labrador. Hundreds of fishing craft of various sizes follow the large species, even to farther north than Cape Chidley, every year and for accounts of their capture the various articles annually published in the newspapers and elsewhere should be consulted.

The range of the large Cod is now much farther north than it was even but few years ago. The schools of Capelin (Mallotus) and Lance (Ammodytes) are pushing farther each year in that direction; and, are, of course, followed by the Cod which consume such incredible numbers that to believe the reports of fishermen, and they alone know best, would produce some startling numbers.

The Eskimo name of the Codfish is U gak, and with the change in the spelling of the word forms the specific name of one species in the genus.

Lota maculosa.

The Burbot is quite common in the lakes of Ungava district; in fact more common than the number of specimens obtained would indicate.

Four moderately sized individuals were procured, all of which were nearly of the same size. They attain a length of thirtyinches but are seldom taken of that size the usual length taken is fifteen to twenty-two inches.

The greatest difficulty in procuring these fishes for scientific purposes was that they are caught by Indians who frequently remain several days away and the fish become so dried and disfigured that numbers were rejected for that reason alone. Those people catch these fish by means of a hook described on another page. They are eaten by the natives but not by the white people. I have heard but one name applied to these fish and that was by the servants of the Hudson Bay Company who call them Ma ri; a word of which I did not learn the meaning but it is most probably introduced from the western side of Hudson Bay; and is doubtless an Indian word.

The fresh colors of the Burbot varies but slightly with the individual and are a very dark olive above and yellowish olive on the lower parts. The iris is darkest olive green above and bright brassy below. Sometimes there are few, lighter, irregularly disposed spots, excepting on the head. The caudal fin has, at times, a faint reddish tinge.

Ammodytes americanus.

Great numbers of these small fishes arrive off the entrance of Hamilton Inlet as soon as the ice is cleared out. They ascend the Inlet as soon thereafter as is

practicable, appearing at Rigolet by the last of May, fairly swarming in the waters. They become scarcer by the last of June and reappear by the first of August. Several were secured among the pools left by the outgoing tide. At Davis Inlet they were, July 17th, quite rare but had been abundant about the tenth of the month. Several individuals were secured at this place.

At low water I frequently found them under stones. One was chased for some distance and at last took refuge under a stone which I carefully lifted and found that the soil underneath appeared to have been excavated; whether alone by this species of fish or not I was unable to decide. It, however, well knew of the refuge to be afforded.

The colors in life are silvery white on sides with darker and greenish reflections on back. Irides silvery white. These fish form an essential portion of the food of the Cod which abound in the waters of the Labrador coast. I have heard the vernacular names of "Lant" and"Lance" applied to these fish on the Labrador coast. The Eskimo give the name of Ung mug yuk to these fishes.

Leptoblennius serpentinus

A single individual of this species was taken at Rigolet July 2, 1882. The fish was swimming through the water and struck with an oar as it came near the surface. I saw a larger individual at Davis Inlet but failed to secure it. At Rigolet I heard the name of "Tanzy Fish" applied to this species. The colors were yellowish with irregular blotches of chestnut-brown on sides and back; beneath paler yellow, approaching straw yellow on the abdomen and nearly white on the throat. Pectorals quite white. Lips bright yellow. Irides brown.

Muraenoides gunnellus

Several individuals of this fish were taken along the Labrador coast. A small specimen was secured at Rigolet, Aug. 6, 1882. It was among a patch of seaweed from which the tide had receded.

The colors of this individual were chestnut brown with minute black specks; the transverse bars nearly black. Lighter below. Iris dark brown with a blackish perpendicular bar running through it. Others of larger size were obtained there at different dates in the early part of July.

Three fine large specimens of five to seven inches in length were taken at Davis Inlet July 17, 1882.

At low tide they retreat under the flattish stones under which is usually left sufficient water to sustain the life of these fishes until the return of the tide. When the tide is flooding they repair to the sandy tracts. Here in the quiet water they look like lizards as they elevate their head and thorax to look at an approaching object. The ones obtained at Davis Inlet were colored dark chestnut-brown with bars of same color on sides with interspaces of light yellowish-brown. Spots of the latter color were sprinkled on the brown bars of dark color. The fins were the same as the back with orange tips. Pectorals deep orange red.

The only vernacular name I heard applied to these fish was "Donecal Eel".

Cyclopterus lumpus

Several individuals of the Lumpfish were obtained at Rigolet where they are quite abundant near the beach and are often thrown up to be left by the falling tide. They frequent the shallower water and obtain their food from among the seaweeds and crevices of the rocks, feeding on various crustacea and small fish. They are quite sluggish in their movements and make little attempt to escape when approached. They may often be seen lying on the bare spots of rock among the patches of seaweeds. They are difficult to perceive as their color is so near that of the rock that they often escape detection.

Two masses of eggs were obtained belonging to

this species. They were attached to a single spray of Fucus, growing on a piece of rock within a crevice.

There is the greatest disparity between the male and female of this species; the latter being fully, when adult, five or six times the size of the former. The male assiduously guards the eggs and woe falls to the lot of any crab or fish that attempts to seize the eggs. One was found near the mass of eggs with his side nearly touching them. I removed the fish and placed it about a yard from the eggs. It swam directly to them and remained quiet. This was repeated several times until the rising tide caused me to secure both the eggs and fish. After depositing the eggs the female does not again regard them for the male assumes all the responsibility of rearing the family. The young are queer looking creatures, resembling a spiny tadpole with a hump on his back.

The vernacular names applied to them at that place were "Paddle-cock" and "Lush"; the former to the female and the latter to the male.

The young are much paler than the adults in color. The adult male is bluish-gray above, lighter on sides; fins, tail and spiny processes vermilion. Irides dull black. The female is dark, dull lead-blue above and becoming paler on sides, soiled grayish-white on the abdomen. Spiny processes, fintips and final third of tail nearly black. This species ranges, along the Atlantic coast, to Disko island, Greenland. I am not aware that this species has been recorded from within Hudson Strait.

Cyclopterus spinosus

A single individual of the Spiny Lumpfish was taken from among the seaweeds at Rigolet. No other specimen was seen and I can not state whether it is common or not as it was not found in any other locality. The color was dull grayish-brown, becoming lighter on abdomen. The spiny processes were much darker than the other portions of the body. The specimen was about three and a half inches long. Nothing special, regarding its habits, could be ascertained.

Liparis lineata

I found this species to be quite common at Rigolet and obtained numerous examples July 2, 1882. They were variously attached, by the disc, to seaweeds or stones, adhering quite firmly. They were quite passive, seldom struggling while in my hand and never attempting to swim when they were approached.

Their color was greenish yellow and nearly translucent.

The Eskimo apply the name of Ni pe shak, meaning sucking, to all the species of Liparis and do not recognize the specific differences.

Numerous individuals were procured at Davis Inlet. These were generally found under stones and present no difference in comparison with those obtained at Rigolet.

Liparis tunicata

This species was found only in Hudson Strait where numerous examples were secured. They are mostly small an inch or so in length, while some of them are larger, exceeding two inches.

They were obtained from under stones in "Labrador's" reef (an immense sunken reef on which the S.S. "Labrador" struck and was held for ten hours; and, while the tide was down the time was employed in procuring specimens. All references to "Labrador's" reef will be intended to indicate this particular locality situated some twenty miles north-west of the mouth of the Koksoak River, flowing into Ungava Bay). One of these individuals is of a uniform color (exactly that of commercial glue). The other is of a lighter glue color and has a horizontal stripe of silvery-white bounded by a dark brown edge, very narrow, from the tail and along the side, extending around and in frontof the head.

Smaller examples are but slightly lighter. They all become a dull dirty-yellowish color after a few hours immersion in alcohol.

Cottus scorpioides

This species has about the same habits as the other species and is fully as abundant along the Labrador coast. Within Hudson Strait it is the more plentiful of the two species.

The smaller individuals are taken quite plentifully at the edge of fresh water and are common in the brackish waters of the Koksoak River. The colors of the living fish are brownish with minute black specks, becoming soiled whitish on the lower surfaces. Irides brassy with black dots.

Cottus groenlandicus

This species was taken in great numbers along the entire coast from Rigolet, Labrador, to the mouth of the Koksoak River, flowing into Ungava Bay.

These fishes frequent the shallow waters of the coves and bays, seeking their food of smaller fishes and crustaceans among the seaweeds. They are not lively and when caught with a hook usually appear at the surface of the water with their mouths and opercular flaps widely distended, their abdomens swollen and their backs humped presenting a singularly grotesque appearance.

The colors of these fishes are so diverse, according to the particular character of the water in which they dwell, that only general descriptions can be given. Of those taken at Rigolet the ground-color was dull gray with black mottlings; spots of black, orange and white on upper surface and fins.

Other individuals were dull brownish above, white below; sides, fins and tail with white, black and orange spots; the outlines of which were well defined. Young

individuals are, generally, dark brown above, whitish below. Fins light at insertion, brownish in central positions and with blackish tips. Irides brassy. Adult fish taken at the mouth of the Koksoak River, were black above with disposition to form bands of irregular character on sides, with brownish interspaces; the lower sides and abdomen yellowish white.

All the Cottids are termed Ka nai ok by the Eskimo of Labrador and Ungava.

The flesh of these fishes is white and firm yet it is rarely eaten by any of the people along these shores.

Uranidea richardsoni

Scores of these fishes may be found at any point along the shores of Hudson Strait wherever streams of fresh water empty into the water of the Strait. In the Koksoak River as far up as the Port of Ft. Chimo they are especially abundant. Many may be taken at low water of the tides throughout the period when there is no ice along shore.

Some of the individuals procured were so tiny as scarcely to be detected in the places they frequented. Small streams of half an inch, or less, in depth and of but few inches wide, where these tiny rills thread their tortuous course through the sand of the beach, contain great numbers of these fishes. I have seen them in streams so shallow as not to hide the tip of the dorsal fin as the fish was startled from the side of a pebble lying in the course. It is quite rare

that individuals more than a finger in length are obtained so far up the river as only the small fry remain in the fresh water until they are large enough to take care of themselves. No one was able to procure larger specimens at the Port than those I secured yet the abundance of such small ones indicated that they could scarcely have been spawned in the sea (twenty-eight miles away and have stemmed such a tremendous current as prevails in the Koksoak River to come up to the fresh water. I sometimes have thought that the adults may have come in the night and disappear to the deeper water during the day. None, however, even dead ones, were ever seen there. At the mouth of the river the adults are to be found as much as five inches in length. I found a much decomposed individual there but could not preserve it.

Great numbers of these small fishes are devoured by the Salmon, (Salmo salar) and by the "Sea" Trout (Salvelinus stagnalis) Stomachs of the former fish have been examined and found to contain a pint, over a thousand individuals, of these small Uranids.

The coloration of these small fishes is extremely variable, even in individuals of same size and from the same locality. They are generally brownish-drab with nearly confluent small, sometimes quadrate, blotches of light to dark chocolate-brown; the abdomen and lower sides lighter. The superior surface of the fins much darker than the lower surface, of those members. Certain individuals are, at times, nearly uniform dark chocolate-brown without markings of any kind. The larger individuals have a pure scarlet tip to the

end of the spinous ray of the dorsal.

The Eskimo do not distinguish between the Uranids and Cottids but designate them both as Ka nai ok or Big mouth.

Gasterosteus biaculeatus

Great numbers of Stickle-backs were obtained along various places of the Labrador coast and Within Hudson Strait. They appear to be as common as any species of fish; the Uranids and Cottids not excepted.

G. biaculeatus is probably the most abundant species in the genus, followed by G. pungitius (typicus) with G. pungitius sub.sp. brachypoda. A single individual determined to be G. zymnurus was secured among a number of G. biaculeatus. These four species apparently represent the only Stickle-backs occurring in the waters examined by me.

The similarity of habits of the species render it unnecessary to designate the particulars other than the following. The species biaculeatus and pungitius were obtained along the Labrador coast as well as in the Ungava district; the subspecies brachypoda and species gymnurus were found only in the Ungava district together with biaculeatus and pungitius. These small fishes are to be found near the shore, if in salt water; and mostly frequent the mouths of the small rills of fresh water flowing into the coves. Many are found, hundreds of feet above sea-level, on the hills where swamps

and small lakes abound. An example of biaculeatus was procured from a swampy tract in which there was so little water that it caused wonder that the fish could live as there was scarcely sufficient space among the moss for it to swim. Great numbers, and often two or three species together, will collect at the"pocket" formed by a stream falling a few inches over a ledge of rock or earth. I have frequently taken as many as a pint of them from a single place of that kind; my hand being severely stung by the sharp spines being suddenly thrown erect. The wound thus produced is very painful unless the part be squeezed to force out the matter left in the wound.

The coloration of these fishes depends very much on the water they inhabit. They are either nearly black, if from swampy tracts, to light lead gray if from clear water. Frequently small dots of dark color are irregularly scattered over the back and sides,

The spawning season occurs at Ft. Chimo in the month of July.

The Eskimo apply the name Ka Ke-la-shuk to all the species and do not recognize any differences in them.

There being no special diversity of habit for the four kinds taken it is not necessary to give separate descriptions of their habitat. A sort of recapitulation only being deemed necessary for the present purpose.

G. biaculeatus - Common in Labrador and Ungava.

G. pungitius (typicus) - Rather common in Labrador and Ungava.

G. pungitius L. subsp. brachypoda Bean - Obtained only in Ungava.

G. gymnurus - Procured only in Ungava where it is apparently rare.

Mallotus villosus

The Capelin abound in myriads along the Labrador coast during the months of May, June and July. They appear during the latter part of May and continue northward, remaining somewhere or another on the coast during that time.

The fishermen report that these small fishes are, each year, going farther north and of course lead the Cod which devours incredible numbers of them, in that direction.

Within Hudson Strait they had not been detected until several years ago when a few were seen in the neighboring waters of George's River. In the spring of 1884 they were observed in great numbers in that vicinity. On the 8th of August 1884 a school of several thousand individuals appeared four miles within the mouth of the Koksoak River. As many as were desired for specimens were secured by the hand as they swam near the shore. The Salmon season was at that time at its height and the small fishes may have taken refuge in the river to escape the attacks of those larger fishes.

This is the first instance known either to whites or natives of the appearance of Capelin in the southern portion of Ungava Bay.

They are well known to the Eskimo, who apply the name Ko le le kuk to the Capelin. The word refers to the upper part of the body being blue as distinguished from the silvery sides, and thus forming a "saddle".

Coregonus labradoricus

The Labrador Whitefish is abundant in all the larger lakes and rivers. In some of the lakes it is apparently the most plentiful fish in those places while in other lakes they are comparatively rare.

They attain only a moderate size, rarely over fifteen inches. The larger individuals are taken from the lakes, although the largest specimen I saw was taken from a net set at the "Loom Hole", near Ft. Chimo, (a cove having a clayey bottom and an extensive deposit of clay on one of its banks. I believe the word "Loom" is a Scotch corruption of loam. The fish was so mutilated that it was impossible to preserve it. Others of good size were obtained from a lake on the opposite side of the river from Ft. Chimo.

The larger fish are not so well flavored as those of moderate size; the former being coarse and have a decided musty odor, doubtless acquired, in the flesh, from the muddy character of the tracts where these fish feed upon minute crustacea and aquatic larvae of insects.

The Indians consume great quantities of these Whitefish during the spring and fall months. They obtain

them by means of a net set in the lakes, for the Indians seldom fish in the streams.

The colors of the Whitefish varies according to the character of the water they inhabit, those from the clearer lakes are whitish yellow on upper sides, paler below and still lighter on abdomen; the back having a dull greenish tinge. The iris is whitish-yellow generally, varying from brassy to nearly silvery-white. The flesh is pure white when cooked. The process of cooking tinges the skin to a dull brown while the layer of fat usually found beneath the skin becomes bluish.

The Eskimo apply the name of Ka vi si lak, meaning large scales, to this fish.

Coregonus quadrilateralis

A small individual, of four inches in length, of this species was captured by hand in the Koksoak river, July 12, 1884. It was the only one ever seen in the waters of Ungava.

This specimen was silvery-bluish above and yellowish-white below; upper edge of cheek steel-blue. Lower fins dull but transparent yellow. Dorsal diaphanous. Irides with a bright, half ring of golden color above pupil below which it was of bright silvery color.

This is, I believe, the first instance of this species having been taken in the waters east of Hudson Bay. It is quite common in the Alaskan waters.

Coregonus artedi

Two small individuals of this species were taken from the stomach of a large lake Trout, Salvelinus namaycush. They were the only ones procured; and from among the number of the Whitefish brought to the post of Ft. Chimo I did not detect others of this species I suspect them to be rare. The Trout was obtained from Goudie's Lake, the largest sheet of fresh water in the vicinity of Ft. Chimo, and some sixteen miles to the westward of the station.

Salvelinus namaycush

The "Lake Trout", as this species is termed by the white people of the regions visited by me, occurs in great numbers in all the lakes and larger rivers. It, at times, attains the extraordinary weight of forty-five pounds and a length of over five feet. The largest individual seen by me weighed twenty-three pounds and was about forty-two inches in length. I had no means of preserving it.

This Trout, when of moderate size, is quite well flavored but when overgrown they are apt to have a musty, earthy taste and smell, which with the softness of the meat render them unpalatable. The character of the water in which they live has much to do with the quality of the meat. Where the water is clear and pure the fish are, of course, much better than where the lake is muddy and full of half-decayed vegetation. The process of cooking appears to

intensify the musty taste of these fishes and if one be eaten in the late winter months it produces an effect that is not readily forgotten. Those taken from the rivers are much finer, more firmly meated, and of a brighter red color instead of a sickly yellow as in the ones from the muddy lakes. At all seasons they form a welcome addition to the food of the Indian who catches them in a variety of ways. It is seldom they catch them by means of a net as it would have to be larger than the nomadic life of those people would warrant them in carrying those appliances on their journies. The hook made by civilized people is also not much used as the Indians assert that it will not "hold" the fish after being swallowed. These Indians manufacture a hook which answers every purpose and is certain to hold the fish if it is once affixed. The implement is peculiar in appearance and needs describing to be appreciated. A piece of Larch wood about four inches is cut into a shape somewhat resembling a minnow of that length. It is flattened and slightly curved. About three-fourths of an inch from where the head of the minnow would be a stout piece of iron or steel of two inches in length, sharpened at one end and flattened at the other is inserted with the flat end into the wood. A stout piece of deerskin line is wound around the barb and shank of wood. Between the wood and barb the line is wound around the threads binding the two parts and by tightening the string it exerts a strength, which as the line is pulled by the struggles of the fish tend to draw them together but is prevented by the lower part of the wood, where the barb is inserted, being firmly bound with sinew. The line

is attached to the hook at the place where the threads are wound around those holding the barb and shank together. The line is usually twenty feet in length; although this depends on the depth in which the fish are to be caught. A weight, such as a small stone, is affixed to the line to sink the hook. The hook is baited with a piece of fresh meat of any kind that may be convenient. It is tied on by means of fine threads of sinew.

As these fish are more frequently taken in the spring months by the Indians it necessitates a hole being cut through the ice of the lake or stream; and through this the hook and bait are dropped. The line is often left for the night and visited the next morning. Several lines may be set by one person.

Sledloads of these Trout are obtained, taken to the camps and eagerly devoured. It is not unusual to find an abundance of the bones of these fish among the refuse of deserted camp-sites.

They assert that large individuals of this species give evidence of great strength and the largest ones require a strong man to capture them. The Indians prize the meat of these Trout above that of any fish. They apply the name Koo Koo mesh to them. The Eskimo term them I ⌀look.

The flesh is yellowish in those fish taken from lakes while those taken from the rivers have pink meat nearly approaching that of the Salmon, Salmo salar.

There is the greatest diversity in the colors of the fish even from the same lake. Individuals of the same size and sex vary greatly so that no more than a general description can be given. A fine example was secured in one of the salmon-nets set in the Koksoak River and in a locality less than two miles from the post, known locally as the "Loom" hole. This individual measured thirty-five and four-tenths inches in length and weighed fourteen pounds one and a half ounces. It certainly was the finest specimen of a trout I have ever seen. The general color was a medium lead-gray with blotches of yellowish brown-olive (exactly the color of an oak leaf which has withered on the tree). These spots decreasing in size and number below the median-line. The undersurface of the fish was pure white. The dorsal and caudal much the same color as the spots on the body above. Although the dorsal was the darker of the two. The adipose dorsal was still darker. The pectorals and ventrails white in front, then dark clotted-blood color fading to crimson on posterior tips. The tips of the caudal rays were suffused with reddish.

Those taken from the lakes are much darker and one would at first glance suspect them to be a different species. When the one was brought to the house from the "Loom" hole everyone about the place declared it to be different from the ones taken from the lakes. Mr. John Ford who has lived over thirty-five years in Labrador assured me he had often heard of the fish but had never seen one; yet, he has seen hundreds of those taken from the lakes.

In the Trout of this species taken from the lakes the ground-color is a light yellowish-olive, a shade lighter on the costal region and still lighter below. The inferior portions of the body are a soiled whitish-yellowish white. The head, back and upper sides everywhere spotted with irregular rings of darker olive-brown enclosing yellowish dots. The darker markings often confluent, producing a zigzag arrangement of streaks separated by yellowish-olive. The top of darker than the color about the dorsal fin. The fins are of the general color of the middle portions of the body, edges of the fins yellowish or red, the latter color is obsolete in extremely large examples, and in some instances very dark olive. Iris bright, brassy yellow. This description applies to two examples taken from Whitefish lake, October 1, 1882. They were numbered 291 and 292.

The following description is taken from two examples obtained from Goudie's lake some sixteen miles west of Ft. Chimo, Nov. 8, 1882. These two Trout were from nine individuals procured the day before. Unfortunately they were disemboweled, before bringing to the post, in order to have less weight to carry, so that I could not obtain entire specimens. They are numbered 293 and 294. Example 294 is a female containing a part of the roe. The ova are about the size of number 10 shot, and are of a bright saffron red color. Example 293 is the larger, measuring thirty-one inches. The greatest depth of body was 5.75 inches. Snout to occipud, 4.85 inches. Snout to end of operculum, 7.48 inches. Cleft of mouth, 3.85 inches. Irides bright brassy with few dark

spots. Lateral line black. Dorsal very dark (almost black) with faint (scarcely evident) green shade, with spots irregularly disposed of light olive-green. Tips of rays black. Pectoral very dark with lighter olive green spots, fewer in number than on dorsal, and apparently only on the superior surface of the fin. The exterior edge of the pectoral is pinkish salmon-yellow. The posterior tips of rays pale carmine, becoming reddish on the outer posterior tips. Abdominal or ventral fins are bright yellow, whitish edged exteriorly. A narrow black streak on 1st, 2nd, 3rd, 4th and 5th bony rays. The remainder of the membrane being of grayish salmon-yellow, becoming much lighter on the inner surfaces. Anal fin is dark olive-green at insertion and for half of its length, gradually becoming lighter on posterior half and broadly edged with suffused crimson. On this fin are to be observed numerous minute rounded dots of yellowish-olive. Caudal, dark olive but lighter than dorsal or pectoral and darker than ventral or anal. The bony rays are minutely dotted with yellowish-olive, becoming darker on upper lobe. The posterior two-thirds of caudal suffused with crimson, darker on anterior third (middle) and lighter on tips. Entire top of head, upper sides of head (anterior to eye) including snout and upper jaws darkest olive-green, nearly black, continuing on dorsum and upper sides to anterior third of caudal fin. Beneath the upper sides the olivaceous becomes obscurely lighter, fading to brassy olive on lower ends of costal region, continuing lighter on sides of abdomen and to the anterior insertion of the anal. Behind the anal, and to

the caudal, the color is yellowish salmon having a decided grayish cast, more especially on the inferior portion of the caudal peduncle. All of this region is minutely dotted with black irregularly distributed. Lips above, blackish, and so appearing from the aggregation of minute dots on a pure gray ground. Lower lip lighter, becoming ashy between jaws and continuing on abdomen and to anterior insertion of anal. Everywhere beneath, the whitish region is minutely dotted with merest specks produced into lines, curves and even into irregular circles and nebulae. The sides of the head, opercula, body on sides are irregularly dotted with small, nearly rounded, spots of rather bright yellowish olive. They are nowhere confluent and are larger on anterior middle of sides and caudal peduncle. Example number 294 is much smaller and the color lighter olive. The spots more silvery and a nearly entire absence of crimson on the fins. The back and superior surface of head much lighter. The largest individual of this species seen by me at Ft. Chimo weighed twenty-three pounds. The length was about forty-one inches. They are probably the most voracious fish inhabiting the northern regions. They are very destructive to the Whitefish and Suckers Coregonus and Catastomus. On one occasion I took from the stomach of one of these Trout a Whitefish measuring over a foot in length.

The teeth of the larger examples resemble those of a saw in size. The Indians assert that the cotton or hemp lines are not so good as those made from deerskin as the latter are soft and not so easily cut by the teeth of the fish.

The time of spawning was not learned.

Salvelinus stagnalis

This large Trout is known along the coast as the "Sea" Trout. It is extremely abumdant, apparently more so to the portions of Labrador north of Cape Mugford. Great quantities are caught at all the stations of the Hudson Bay Company and those of the Moravian Missionaries .

The largest and best flavored are said to come from Nakvak. The season for taking them varies two or three weeks, depending much on the character of the weather and the proximity of ice.

At Ft. Chimo these fish begin to ascend the river about the twenty-fifth of July, rarely earlier; and occasionally as much as twelve days later. At the beginning of a "run" but few fish will appear and be greatly augmented in number in the course of three or four days. The "run" as it is called lasts from eight to fifteen days, decreasing as it increased with about four days in which the fish are plentiful.

These Trout ascend the rivers until they come to suitable spawning beds. I have seen them over a hundred and ten miles up the river. Beyond the falls they can not ascend as here is a perpendicular wall of over forty feet, over which rushes a tremendous torrent of water. They are known to ascend the Larch or North river, a tributary of the Koksoak, affluent at about 110 miles from the mouth of the latter river, to a great distance. They are taken by means of a gill-net set in the river. These fish are quite finely flavored although

hardly so delicate as S. fontinalis of the same size.

The coloration is quite different and the presence or absence of hyoid teeth is suffieient to distinguish the two species. The specimens procured by me were from the Koksoak river and do not present any appreciable differences from specimens procured in Greenland and specifically named Stagnalis by Fabricius. This is the first instance of stagnalis having been taken on the continent unless the one of which only a photograph was obtained by Lieut. Greely, of Arctic fame, should (and Dr. T. H. Bean is inclined to believe it to be such) prove to be a specimen of stagnalis. The species hudsonicus of and stagnalis are the same with name hudsonicus, as now determined, as a synonym of stagnalis.

These fish are also called I ha look by the Eskimo who do not recognize specific difference with those of fontinalis.

Specimens of intestinal parasites were obtained on several occasions often in large masses extruded after the death of the fish of this species. The parasites were sent to Dr. Joseph Leidy, of Philadelphia. In the Proceedings of the Academy of Natural Sciences of Philadelphia for 1885, p.122, Dr. Leidy states:- "Several vials with tape worms were obtained by Mr. L. M. Turner from a trout, Salvelinus stagnalis, Fabr., at Ft. Chimo., Ungava. One of the vials contained eight worms ranging from three to eight inches long, together with fragments of others; and was labeled, 'Passed from a Trout, caught in the river, Aug.14, 1882'. The worms belong to a species of Bothriocephalus or Dibothrium, apparently different from either the D. infundibuliforme or D. proboscideum, found in Salmo salvelinus, S. salar, S. trutta, and other fishes of the kind. The specimens were all mature; the segments from near the head throughout being distended with brownish eggs. The characters of the worm are as follows: Body linear, band-like, widest just behind the head, and gradually narrowing to the posterior extremity, thickened along the middle and to a less degree along the lateral borders, which are narrowly obtuse at the free edge, apparently continuous but irregularly crenulate; the broad surfaces transversly wrinkled, with the lateral borders defined from the middle by longitudinal striae; anterior extremity wider and transversely convex; posterior extremity obtusely rounded. Head small, oval, equitant across the anterior border of the body, with an oval bothria fore and aft, directed obliquely from the broad surfaces of the body - No distinct neck. Segments of the body commencing immediately

after the head, wider than long, indistinctly defined at the lateral margins and most marked transversely along the middle of the body, becoming narrower and slightly longer at the posterior part of the latter, fertile throughout and furnished on one side of the body, in the median line, with a prominent penal papilla and just behind with a genital pore. Animal whitish with a median chain of brownish spots due to the ova-distended uteri. In a specimen of eight inches in length, the anterior extremity of the body is 3 mm. wide; at the middle 2 mm.; and at the posterior extremity 1.5 mm. The head measures 0.16 mm. transversely and 0.18 mm. deep or long on the broad aspect of the worm. The segments generally measure about 0.625 mm. long. The ova are brownish, oval, and 0.04 mm. long by 0.024 broad.

The second vial contains a single worm, and is labelled, "Taken from the intestine of a Trout, Aug.29, 1882". This worm I suspect to represent an immature stage of the former. It is 30 mm. long and in shape resembles a fluke-worm or a leech. It is elongated elliptical, flat, widest in front, with the lateral margins apparently entire, the broad surfaces transversely striated, and longitudinally divided in three bands, with the middle band indistinctly divided into segments, on one surface in the median line provided each with a minute pore. Head oval, situated fore and aft across the anterior transversely convex border of the body; with a minute oval bothria fore and aft. Caudal extremity narrowest, transversely convex at the end, and emarginate or with a pore. Breadth at fore-part 3 mm., at back part 2mm. The species may be named

Bothriocephalus (Dibothrium) cestus".

Salvelinus fontinalis

The common Brook Trout is especially abundant throughout all the streams of smaller size in Labrador and Ungava. Many of the streams are so small that one would scarcely suspect their presence in the water and only by patient watching or by accident do these fish show themselves.

I had no opportunity to inspect the streams in the vicinity of Rigolet and only on one occasion did I see a fish which I took to be this species. At Davis Inlet I saw a great number in the creek emptying into the "Run" some two miles southwest of the station. I had no means of procuring them from the rushing water of that stream.

At the mouth of George's River, flowing into Ungava Bay, the physical character of the surface of the land changes abruptly along the coast; becoming much lower on the western side than on the eastern side of the river. Here begin a series of lakes having outlets of variable size emptying directly into the Bay. A large lake is situated some ten miles back from the mouth of the river and approach to the lake is over a singularly level tract composed of gravel sand and clay compactly cemented together. On its surface grows the scantiest crop of lichens and mosses of only an inch or so in height forming the pleasantest tract to walk over which I have found in the district. Through this soil a creek of variable depth, few to many feet, for it is more a continuation

of basins than anything else, emptying over a granite shelf of polished surface directly into the bay. To the eastward of this stream is another flowing amongst huge boulders which were deflected by the hills, forming the eastern side of that valley, when glacial action had full sway. These boulders now lie in a swampy expanse, the water of which varies in width and depth colored to a sombre hue by the presence of slowly decaying vegetation. Here as I stepped from one boulder to another in order to cross the stream, I saw thousands of Trout of all sizes to two feet in length; and, of most gorgeous colors.

Large specimens of Salvelinus stagnalis swam lazily in sight to quickly dart under the cover of the rocks when I made the least motion. Beautiful examples of Salvelinus fontinalis constantly appeared and these were mostly the least alarmed at my presemce.

In the vicinity of Ft. Chimo these Trout are very abundant. A small creek locally known as "Blue-berry" creek whence the water supply for the station is obtained. The native boys and girls caught many of these Trout from this stream.

The outlet of Whitefish Lake, lying some three miles east of Ft. Chimo, is one of the best places for these fishes. The water of the stream courses through a series of swamps, groves of trees and clumps of alders and willows and having several very deep pools. In the fall of the year or during the early part of November the lake freezes over,

affording a convenient means of approaching the stream. The ice covers the greater portion of the stream excepting where the current is too swift. In the open holes the fish fairly swarm. The natives (Eskimo) armed with a trident made of three pieces of slightly divergent, stout wire are affixed to the end of a pole several feet in length. The ends of the wire are sharpened and have a very crude barb on the inner-part to prevent the fish from slipping off after being impaled. The Trout are thus obtained by jigging the trident into the water or throwing the instrument at the fish when seen. It is scarcely necessary to add that an Eskimo rarely misses anything he throws a spear at. I have known two or three to form a party and start out after daylight of a short November day and return with as many as each person could carry.

When they are taken in the Fall they are very fat and are well flavored. After the severe weather sets in and the streams are frozen as much as they will be for the winter the Eskimo know of the deeper portions of those basins. They take an ax to cut through the ice and find in the water of the hole scarcely less than a mass of fish. They scoop them out by hundreds. By this season of the year the fish are much reduced in size so that by the melting time of the ice in Spring they are but little more than skin and bone.

There is great difference in the quality of the meat of the males and females. The former when cooked are of a yellowish color, and easily broken and not of so delicate a flavor; while, the females are reddish in color, firm in fibre

and of a decidedly fine taste.

These fish attain a great size after they leave the small streams and go to the sea. Many remain in the rivers until they attain a length of fifteen inches and retain, while in the fresh water, the same patterns of coloration as when found in the small streams. Those obtained from the river are caught by means of gill-nets of a fathom in depth and eight to twelve fathoms in length with meshes that are two to two and a half inches. The nets are sunk by means of weights with small floats on the "back-line". One end of the net is attached to the shore while the other is anchored out in the stream, usually to form an obtuse angle with the shore. As soon as the ice clears out of the river in the Spring the nets are put down. It frequently happens that changes of the wind drive the ice back into the mouth of the river and the tide carries it far up the river again. This sweeps the nets away and several are lost every year. For delicacy of flavor the river Trout, taken in the latter part of June, surpass that of any fish of the district.

I am not certain when these fishes leave the fresh waters of the Ungava district to go to the sea. They are taken anytime after having been in the salt water after the last of July. Great numbers are obtained from the nets set for Salmon. Under the article of <u>Salmo salar</u> will be given the method of obtaining the larger individuals of Trout.

The Trout which inhabit the small streams and those, of the rivers, which have not yet been to the sea are, by the Eskimo, termed A na.

The coloration of those from the brooks varies greatly. They are the darkest olive on the back and upper sides gradually lightening below the median line to a slight yellowish olive, lighter, almost white, on the abdomen and pure white beneath the head. The edges of the lips blackish. The fins, pectoral, ventral, and anal, are pure waxy white in front succeeded by a black line then variable shades of vermilion often deep and pure in color. The anterior fin is generally lighter than the ventral and the anal is usually the brightest. The dorsal is usually the color of the back but with irregular spots of dull yellowish, these spots are so variable in size and number that it is difficult to find two of these Trout having the dorsal fins colored alike. The adipose is somewhat the color of the caudal peduncle and lighter than the back of the fish. The caudal is always lighter than the other fins and has a pink shade tinging it. That portion of the body contiguous to the anal fin is sometimes of most beautiful scarlet deepening to crimson, giving an effect combined with the other colors that should be seen to be appreciated.

The Trout from the river are much duller in color and have the spots of red on the sides nearly obsolete; the fin colors seldom bright.

After they have been to sea they lose all the

bright colors, becoming a light lead color on sides, whitish below and olive green on the backs. The fins are rarely seen to have a tinge of red about them and frequently have black spots on the lower fins and caudal.

These latter are now (when they have been to the sea) termed I ha luk by the Eskimo.

Salmo salar

The first Salmon of this species seen by me was a fine female, of nineteen pounds, caught near the station of Rigolet, Labrador, July 7, 1882. She was full of ova; each egg being about one ninth of an inch in diameter. This date was rather early; the first appearance of these fish being usually about the twentieth of that month. They have, on rare occasions, been taken at that place as early as the 28th of June. The principal "runs" being from the 25th of July to the last of August; although, by the latter date there are but few taken.

Other examples of this species were not seen until we arrived at Ft. Chimo, Ungava. North of Rigolet there are no streams suitable for the ascent of these fish into spawning beds. All the streams are quite small and so short that the fishes pass them by and continue northward and into Hudson Strait.

The first large river within the Strait is George's river, Kang ak clu a-luk so-ak as it is termed by

the Eskimo. In George's River are numbers of these Salmon. No attempt had been made to take them from this stream until the summer of 1884 when a few tierces (less than a score in number) were salted. The Hudson Bay Company in that year established a trading and fishing station near the mouth of that river. Through mismanagement the season passed with the result of only about seventeen tierces of these fish being obtained. The native fishermen (Eskimo who had never attempted such work before) reported an abundance of the fish but from the limited number of nets and conveniences for preserving them they were compelled to throw away many of the fish even after being caught.

The next river of importance is Tuk tu twok (an Eskimo name) which is a smaller stream and in which the Salmon are known to ascend but not in great numbers. The next stream is Ma ha lin and is also small but known to contain Salmon during the season. These two streams are inaccessible to vessels having over six feet draught, as the tide ebbs for miles on either side leaving nothing but a swash of fresh water at low tide. The next river is Whale River or Ung ne ag vik. This stream is large for about forty miles then contracts to a narrow stream of considerable depth. The mouth of this river is studded with islets and sunken reefs, forming a serious obstacle to successful navigation. The current produced by the rise of fifty-four feet of tide at this place is simply tremendous. Very dangerous tide rips start up without a moment of warning and toss a boat to an alarming degree. In this river Salmon are

found but the quantity is not known; although, there is every indication to believe it to be considerable. The origin of this river is from a large lake something like one hundred and fifty miles from the coast, according to information received from Indians.

The next place is Ak sak sig i ok or "False" river. This is merely a deep inlet of nearly forty miles and has a small stream flowing into the head of it. The Salmon enter the inlet but go out again.

The next stream is the Koksoak river on which, at about twenty-eight miles from the mouth, Ft. Chimo is situated. This river is also known as the South river, I suspect it to be so named because it flows northward; the Juniper Islands in this river are so named because there is not a tree of that species on them; a tributary of the Koksoak is named North river because it flows from the westward. Other instances of incongruous names in English applied to things in that region could be given.

The Koksoak river is the largest stream flowing into Hudson Strait. It is nearly four hundred and fifty miles in length, taking its rise from a large lake lying on the "Heighth of Land". Indians assert that two streams issue from the lake and unite at about one hundred

miles from their source. The Koksoak is obstructed by several falls and numerous rapids. The first considerable falls is at about 115 miles from the mouth of the river. Beyond this is impossible for fish to ascend as it has a fall of forty-three to forty-seven feet. Below the first falls there are three tributaries. The first and largest is the "North" or Larch river. It is about sixty yards wide and noted for its rapid current and numerous rocks and rapids. It takes its rise from lakes about one hundred and twenty miles to the southwest and northwest, the two streams forming this river unite at eighty miles from its mouth. This information was obtained from Indians. The next tributary to the Koksoak is a small stream, which I propose naming Wolf river, flowing into the left side of the Koksoak at about ninety miles from the mouth of the main stream. Wolf river is too small to be considered as a fish stream.

The next river is one of about forty yards wide flowing into the right side of the river and is about one hundred and five miles from the mouth of the Koksoak. I propose naming this small stream Deer river. It flows from a large lake some forty miles to the southeast of the mouth of the river. It is very turbulent, for about four hundred yards from its mouth it is a foaming rapid, caused by the presence of so many large boulders in the bed of the stream. The Indians assured me that the Salmon ascend this stream but only a few had been seen.

Where the spawning beds of the Salmon are, in the Koksoak, I could not satisfactorily ascertain. No Salmon are taken from the river Koksoak higher up than a few miles beyond the station at Ft. Chimo. These fish arrive in the Koksoak at variable dates. Seldom before the 24th of July and on several occasions as late as the 20th of August. The presence of ice in Ungava Bay, into which the Koksoak flows, has much to do with the fish entering the stream. Winds and tides influence the quantity and proximity of the fields of ice coming from the north side of the Strait, Hudson Bay, and in 1882 we were detained eleven days in the ice, in that bay, which had certainly come from the Atlantic; and driven there by the northeast winds which had prevailed for nearly three weeks previously. That year the Salmon did not appear until the 14th of August.

These fish are caught by means of nets of various lengths and depths, depending on the particular location of each net. From eight to ten fishing stations are established along the river during the season. The first is at a locality known as "Hunting Bay" some four miles above the Post. There two or three nets are set and one at the "Loom" Hole. These are attended to by persons from the Post. At "Whale's Head" some three and a half miles below the Post is another fishing place. At Pugevik, or McKay's Island, is the third station. The next is at "Chumpy's Point". The fifth is at the "Narrows". The sixth at "Gull" Cliff. The next at "Partridges'" Cove. The next at "Koktok's" Point. The next two and last are at the mouth of the

river, on opposite sides. The first or upper and the last two or lower are usually in charge of white men. The one on the left is known as Lyall's fishing place, while the other is known as Irvine's fishing place, or on the right bank at the mouth of the river. Each one in charge of a station selects the nets which belong to that locality of which he is in charge, The buoys (small kegs), anchors, ropes, provisions, bedding, etc. are taken to the place. One or two nets are put in position. The "backing" rope is secured to an iron ring which has been fixed into the solid rock of the bank. The inner end of the foot rope has a large stone affixed to it and is dropped close in shore next to the bank to prevent the fish from passing behind it. The farther end of the backing-rope is stretched out and anchored so that the current will have the least effect upon it. The other end of the foot-rope has a light stone attached to it to prevent it from rolling around the backing-line. The net is now ready for the fish when the buoys are attached to the backing-rope, placed at convenient distances to prevent the net from sinking. Everything is made of the strongest character else the waves and the tremendous current augmented by the volume of sixty-two feet rise and fall of tide would tear then into shreds were it not for the guy-ropes which are placed at convenient distances along the "back-rope" and then anchored out to prevent swaying of the net. At the outer end of the net a V is made to form an inclosure to keep the fish from going past the net when they swim along and come to the outer end of the net. Severe gales suddenly arise and cause havoc among the nets at the mouth of the river.

The Salmon make their appearance in the river either at spring or neap tides. The "runs" are usually two. The first run comprises the larger and more vigorous fish, and continues for about ten days; rather rapidly attaining the maximum amount for that run and slowly decreasing to be followed by the second run of smaller fishes. It is rare that a third run occurs and this is simply a second maximum of the second run.

The nets at the mouth of the river would, of course, obtain the most fish and there is often a great spirit of rivalry between those situated on each side of the river. As these fish come from the Atlantic and follow the coast line it is natural that the nets on the eastern banks will secure the greater number of fish.

The nets are visited every tide when the weather will permit. The fish are taken from the nets, put into a boat and by it taken to the station where a small tug comes from Pt. Chimo each day and carries the fish to that place. Each fish is examined to discover whether it has lain in the sun or been bruised by beating against the rocks. If an eye is out or the scales knocked off the fish is rejected by the one who inspects them. They are then washed, the gills cleaned and the fish is taken into the hold of the vessel. A steamer named the "Diana" is annually sent from London for the purpose of freezing the fish by a dry air process which effectually does the work. The vessel has a storing capacity of about fifty tons. The fish

are then put whole into crates of slat-work capable of holding six to ten fish, according to size. These crates when filled are put into the hold and carefully arranged to admit the best circulation of the stream of cold air having a temperature of eighteen to twenty-two degrees Fahr. In the course of a few hours the fish stiffen and in about twelve hours they are frozen solid and thus preserved until the return to London by maintaining a constant temperature several degrees below the freezing point. It requires the constant care of the engineer of the vessel to attend to the freezing process as the variation of but few degrees would affect the entire cargo. On arrival at London the fish are sold by auction at so much per pound. The price varies according to the supply of Salmon arriving from other parts.

Fish that are scaled or slightly soft, yet good, are salted and sent away in that condition. The amount of frozen fish sent to London each year by the "Diana" varies according to circumstances, among which are properly equipped fishing stations, number of men employed at each and the energy displayed by the natives who occupy all but three of the fishing-stations. These latter are furnished with provisions from the stores as it is cheaper to feed them than to have them eat fish which will sell for from twenty-five to sixty-five cents per pound in London. The natives receive the value of one skin (about six cents) for each fish delivered on board the tug "Ft. Chimo". The white men receive, or it is at least promised them, a bonus of two pounds sterling besides their regular wages of ten to twenty dollars per month with an

allowance of eight pounds of flour and about six pounds of pork or beef per week. All the remainder of the food of the white men is purchased at rates depending on the temper of the agent, who is considerate enough to allow the sum of ten dollars per year additional for the purchase of tea and molasses.

The meshes of the nets are from six to six and a half inches. The nets are termed gill-nets, for the reason that when the fish attempts to pass through it is obstructed by the net-mesh binding at the gills or behind; any struggle on the part of the fish causes one strand or side of the mesh to pass behind and under the gill thus preventing, by the size of the mesh, the fish from turning, for it can not swim backward. The fish is thus drowned. The size of the Salmon caught in these nets ranges from nine to forty-five pounds. As before stated the larger fish are caught during the heighth of the fish run. During the catch for the summer of 1881 the average weight of the fish taken from the Koksoak River was nineteen pounds. For 1882 the average was only sixteen pounds. For 1883 the average was only fourteen and a half pounds. For 1884 it was about fourteen and two-thirds pounds. Each year the decrease in average weight has been shown as has also the catch in the fish. The first year about forty tons were taken; the second only twenty-four; the third about thirty-eight and the number taken in 1884 was less than forty tons. The profits arising from the sale of these fish in the London market is very great as the cost of the fish is not more than half a cent per pound to which

should be added the expenses of the vessel, nets, etc.

It was mentioned, in another connection, that the trout inhabiting this stream were also taken in the nets used for catching Salmon. The Trout are most abundant during the Salmon season and many are taken. They are preserved in the same manner as the Salmon and bring the same price. The Trout are of course smaller than the Salmon, in fact one is rarely taken in the Koksoak that exceeds sixteen pounds. They are kept separate in the crates and in the records of the fish obtained each day. The average weight of the Trout is nine pounds. They disappear with the Salmon; although, in other localities they remain all winter.

To the westward of the Koksoak there are other large streams flowing into the south side of Hudson Stfait. The first of these is Ta su yuk, an Eskimo word, meaning like a lake, because the mouth of the river is so formed. Salmon are known to abound in this river. It is easily approached by a vessel; and, in the bay, at its mouth, are said to be good anchorages. In the mouth of this river Trout are obtainable at any season of the year. I saw a number which were speared, in the month of March, through holes in the ice. These were very fine and in excellent condition. The Eskimo assert that the abundance of these fish at that place is the cause of so many seals frequenting that locality even during the severest weather. To the westward of the river is another of large size named Kog a look, or big river. This stream drains the lakes and swamps to the southwest. It contains an abundance

of Salmon and Trout. The next stream is Ung u va and from it the large bay into which it flows derives its name. It is often spelled Ungava. Trout and Salmon are said to be extremely abundant in this river. Somewhere near its mouth is reported to exist a dangerous whirlpool, formed by the position of Akpatok Island and the tides in the Strait. This whirlpool is intermittent, filling up and becoming inapparent, soon after it begins to form a rapidly whirling vortex and is said to make considerable noise. It fills again from the bottom and soon disappears. The natives give no heed to it in calm weather but during stormy periods it is not to be seen until the Kaiak is upon it. There are no other Salmon streams to the west and north of the last named stream. Many other streams have not been mentioned but they are small and so far as is known they contain only Trout.

The largest Salmon which came under my observation was a male weighing forty-four pounds and measured forty-one inches in length. Others were taken, which I did not see, and reported to be even larger than the one just mentioned. The colors of the Salmon need no description. This species is the only one inhabiting that region. When they come from the sea they are certainly a fine fish. They are known to have just come in by the presence of "Sea Lice" on their bodies. Both the Trout and the Salmon have these parasites.

A great many of the Salmon remain in the rivers and lakes until the ensuing Spring. They then descend and go out to sea, often returning with the others. This fish is then

known as a "Slink". It is shaped more like a Pike about the body and the flesh is like so much cartilage. They are not used for any purpose except when they return from the sea, but even then they have not the form of those which have been in the sea for the winter.

Of the many Salmon and Trout which I have opened I have found nothing but small fry of Boreogadus saida, Uranidea richardsoni and Cottus groenlandicus within their stomachs. Intestinal parasites are quite common in the lower parts of the channels.

It was reported to me that the Eskimo of Ungava had no name for the Salmon until the advent of the white men. They had seen the fish in the water but as they were not and are not a fishing people in that vicinity they had never seen them out of the water as they had no nets to catch them with. Even to this day the Eskimo there do not fish with nets, using only a rude trident of wire to catch the small Trout. The Eskimo now give the name of Ka vi si lik from the word Ka vi sik meaning scale. It will be observed that the Coregoni were also termed Ka vi si lak. The accent being on the last syllable intensifies the size of the scales in proportion to the comparative sizes of the two fishes.

Catastomus teres

A single individual of this Whitefish was procured from Whitefish lake, three miles east of Ft. Chimo, Nov. 18, 1882.

The colors of the fresh example were as follows;- Back and sides to the lateral line, or seventh row of scales from ventral fin, dull bluish-black, the margin of the scale-pockets nearly black, the center of the scales lead color. Beneath the lateral line the color became lighter, becoming a yellowish-white on lower parts and dead silvery-white on space between pectorals and space anterior to them, forming a triangular continuation to middle of lower jaw where it is tinged with yellow. Lower sides of head dull bluish white, darkening to the superior portions of the head. This darkening shows first as the dark color on the scale pockets which are more and more darkened as the dorsum of the fish is reached, the posterior portions of the scale pockets being darker than the anterior. This is more specially depicted on the head and caudal peduncle. The dorsal fin is dark edged on the anterior portion of all the rays. The spinous portion of the caudal is black while the ray membrane is olivaceous, tinged with carmine. The anterior ray of anal is reddish-yellow as is also the fleshy portion at its insertion. Abdominal fin yellowish tinged deeply with saffron red. Rectoral slightly tinged with pinkish on posterior margin. The entire edge of the opercular flap is deeply tinged with red. Lips pale, pinkish-yellow. Iris golden with an olivaceous, semilunar line over the pupil.

All the Whitefish in this region are said to spawn during the months of December and January. I was unable to confirm this as my opportunities for obtaining gravid females were very few.

Somniosus microcephalus

A large individual of this species was caught, August 30, 1883, in a net set for Salmon at the mouth of the Koksoak River. The Shark had evidently ascended the cove in pursuit of the Salmon which were at that time quite plentiful.

On dissection of the stomach it was found to contain nothing but a semi-viscid fluid of about a gallon and a half in quantity. The flesh was quite fat and the liver appeared to be full of oil.

The following measurements were taken while the Shark was yet fresh:- Length from tip of snout to end of superior portion of caudal 10 feet, 1.75 inches. Weight about 400 lbs. Nostril to eye 7 inches. Eye to anterior spiracle, 12 inches. Middle of snout to middle of upper jaw, 11 inches. Anterior to posterior spiracle, 9.5 inches. Length of spiracles, 2.5 inches. Orbit 1.25 by 1.5 inches. Eye to middle of insertion of perctoral, 24 inches. Middle of insertion of pectoral to anterior portion of dorsal, 21.5 inches. Middle of insertion of pectoral to posterior portion of insertion of dorsal, 26 inches. Length of anterior portion of dorsal, 9.5 inches. Posterior heighth of dorsal, 6.5 inches. Length of insertion of dorsal, 10.5 inches. Length of pectoral, 14 inches. Length of posterior edge of pectoral, 5.5 inches. Lower insertion of pectoral to anterior edge of anal, 44 inches. Posterior portion of insertion of dorsal to anterior insertion of anal, 25 inches. Adipose dorsal heighth, 7.5 inches. Adipose dorsal,

posterior heighth, 5.5 inches. Length of insertion of adipose, 7.5 inches. Length of upper lobe of caudal, 22 inches. Along posterior edge of upper lobe of caudal, 9 inches. Along posterior edge of lower lobe of caudal, 1.35 inches. Along inferior edge of lower libe of caudal, 14.5 inches. Posterior insertion of anal to caudal, 17.5 inches. Inferior length of anal, 7 inches. Between bases of pectorals and over back, 21 inches. Midway between nostrils to tip of snout, 4.25 inches. Circum.of body back of eyes, 39 inches. Circum.of body over posterior spiracle, 48 inches. Circum.of body anterior of dorsal, 52.5 inches. Circum.of body posterior of dorsal, 46 inches. Circum.of body anterior to anal, 33 inches. Circum.of body anterior to adipose, 24.5 inches. Circum.of body posterior of adipose, 19 inches. Circum.of posterior portion of caudal peduncle, 13 inches. The color of the body was nearly uniform medium lead-blue, becoming lighter on the abdominal region. Iris blackish-blue. The mouth inside was mottled with dark specks. The cavities of the cartileges were of a pale smoky-brown. The liver was very large, about one sixth the weight of the Shark, and of a dull yellowish white.

A second individual was obtained, Aug.10, 1884, a few miles farther up the Koksoak River and also entangled in one of the nets set for Salmon. This example measured eleven feet and one-fifth in length from tip of snout to tip of superior lobe of caudal fin. Tip snout to nostril, 5.5 inches. Nostril to eye, 5.75 inches. Eye to ear, 5 inches. Ear to anterior spiracle, 8 inches. Posterior spiracle to anterior

insertion of dorsal, 15.5 inches. Tip of snout to anterior insertion of pectoral, 38 inches. Upper edge of anterior portion of insertion of pectoral to anal, 39 inches. Anal to lower base of caudal, 14 inches. Anterior insertion of dorsal to adipose, 29 inches. Anterior insertion of adipose to base of superior lobe of caudal, 22 inches. Length of upper edge of superior lobe of caudal, 22.5 inches. Base of insertion of lower lobe of caudal to tip of superior lobe, 27 inches. Dorsal base, 9 inches. Adipose base, 7 inches. Circum.at anterior portion of dorsal, 55 inches. Circum.at posterior portion of dorsal, 54 inches. Circum.at anterior portion of adipose, 32 inches. Circum.at posterior portion of adipose, 20 inches. Circum.at base of caudal, 14.5 inches. The stomach contained only a chunk of fat from a White Whale, Beluga catodon, quite fresh and measuring 8 by 5 by 1 inches. The color of this individual was the same as the one previously captured. The liver was so large that it filled vessels having a capacity of thirteen gallons.

The Sleeping Shark is quite abundant along the Labrador coast. It is frequently taken in nets set for Salmon and Trout. I could not learn of any particular use made of those so obtained. Some Whale River Indians informed me that these Sharks are found in the vicinity of Ft. George on Hudson Bay.

- - - - - - - - - - - - - - - - - -

ALGAE

By W. G. Farlow, Cambridge, Mass.

The Algae collected in Ungava Bay consist of a great number of mounted specimens besides some roughdried material which I have soaked out and mounted for examination.

The collection is especially interesting because it contains a number of species of Florideae which are seldom seen in herbaria. Not only are the species of great interest, but they are here represented, in several cases, by large sets of specimens which enable one to estimate the variations in specific characters. This is a point of considerable importance for, except in rare cases, only a very small number of specimens of the less common Florideae is to be found in collections of Arctic Algae.

In 1883, Dr. F. R. Kjellman communicated to the Swedish Royal Academy a monograph of the Algae of the Arctic Sea, which has since been issued as a separate publication. This admirable treatise is the most complete account of Arctic Algae ever published and must form the basis of any future study of the subject. Those interested in the literature relating to the Algae of Greenland and the Arctic shores of America will find everything given in Kjellman's work and it is not necessary to recur to the subject in this connection.

In relation to the Algae of Ungava Bay it may be well to consider some of the forms collected, within the last few years by American explorers, in Arctic regions. A number of species were obtained by Dr. Ludwig Kumlein, the naturalist of the Howgate Polar Expedition in 1877-78, of which a list is given in the Bulletin of the National Museum, No.15, Washington, 1879. The Algae collected by Dr. Kumlein were sent to me for determination and I sent a rough preliminary list of the species which was printed in Bulletin 15. I did not suppose that my preliminary list was to be printed, otherwise it would have contained references to authorities.

In the following account I have included a revision of the Algae, collected by Dr. Kumlein, which were found at localities comparatively near Ungava Bay. I have also noticed some of the forms collected by the Expedition to Point Barrow under Lieutenant P. H. Ray, and, also a collection made at St. Paul's Island in Bering Sea; for the latter I am indebted to Prof. D. C. Eaton of New Haven.

FLORIDEAE

Odonthalia dentata. Lyngb. Ungava Bay (Turner).

A large number of specimens were collected, all of the broad form common on the northern shores of Europe. The narrow form of this species which, were it not for intermediary forms might almost be considered a distinct

species is apparently more common in the Gulf of St. Lawrence than the type. The typical form was obtained at Point Barrow and was also found as far south as Victoria, British Columbia, by Mr. C. W. Lichtentholer, one of whose specimens was unusually broad, being almost flabellate in shape.

On the Eastern coast this species is unknown south of Halifax, N.S.

Polysyphonia Arctica J. G. Agardh. Ungava Bay. (Turner). Annanahtook Harbor, Gulf of Cumberland (Kumlein).

A considerable number of specimens were collected and, in all those examined, a section of the larger branches showed seven cells surrounding a central cell. The specimens from Annanahtook Harbor grew on kelp at a depth of seven fathoms.

Rhodomela lycopodioides J. Ag. var. tennissima Kjellman. Ungava Bay (Turner). Penny Harbor (Kumlein).

The typical form of this species, as figured in the Phycologia Britannica and represented in Areschang's Algae Scandinavicae Exsicatae No. 3, is unknown to me on the American coast.

Several specimens which agree closely with a specimen of Ruprecht's Fuscaria tennissima which is considered by Kjellman a variety of R. lycopodioides were collected by

Turner and Kumlein. A coarser form which I can with difficulty distinguish from some of the New England forms usually placed in Rhodomela subfusca, Ag. were found at Kikkerton Island by Kumlein.

Delesseria sinuosa Lamaur.

Evidently as common in the Arctic Ocean as on the coasts of Europe and New England; and, represented by a very large number of specimens collected by Turner.

Delesseria Montaguei Kjellman.

The present name was adopted by Kjellman in his Algae of the Arctic Sea in order to distinguish Delesseria denticulata Montague, from Harvey's species of the same name. A large number of specimens which can be referred, without doubt, to Del. denticulata Mont. were collected in Ungava Bay. They are sufficiently distinguished at sight from Del. alata by the serrated margin of the fronds. Besides the lateral veins are, with a lens, generally easily seen in the broader parts of the fronds, thus agreeing with the description given by Kuetzing in the Tabulae Phycologicae. With regard to the relationship of the Algae from Ungava Bay to Del. spinulosa Rupr., a species found in the Pacific, I am unable to express any opinion as in none of the north Pacific collections, which I have examined, is there any form resembling the present species.

Delesseria alata Lamour.

A number of specimens which seem without doubt to belong to this species were collected in Ungava Bay. They resemble closely the broader form of the species found on the British coast. A fe small specimens resembling rather the common, narrow form of the New England coast than the type, were collected by Kumlein. Delesseria augustisinia Griff. a species certainly closely related to Del. alata, must be very rare on the American coast if it occurs at all. A single specimen collected several years ago at Cape Ann by Mrs. Lusk and referred by me to D augustisinia has cysto-carpic fruit. unfortunately the specimen was somewhat water-worn when obtained and, on that account, the determination is somewhat uncertain.

Delesseria Baerii Rupr.
Delesseria corymbosa J.G.Ag.

The members of the subgenus Cryptoneura are, with one exception, very difficult to distinguish. This ariees in part from the small number of specimens of this group which are to be found in herbaria. An extraordinary number of specimens, not far from 150, were obtained in Ungava Bay and, with this large amount of material it may be possible to obtain a better knowledge of the variations of the species of this group than has hitherto been possible. Some of the material was mounted and the remainder kept rough dried; it was, however, soaked out by me for examination. The specimens

furnished an abundance of tetraspores and, in some cases, cystocarps. Some of them were from six to eight inches long; the fronds arising from a dish-like base so far as could be judged from the small number of specimens in which the base was present. In general, the specimens could be arranged in two sets but transitorial forms were unfortunately frequent and I am almost forced to believe that they are all forms of a single species but what to call the species is not easy to decide.

In one set the main axis bears a number of long, lateral branches which are comparatively thin and compressed, more or less regularly zigzag, giving off the short, secondary branches at the angles. The alternate branches are short and distichously pinnate, becoming somewhat corymbase at the tip. There can be little doubt that the specimens just described should be placed in Delessaria corymbosa. The figure of that species in Kjellman, l.c. Pl.10, fig.3, resembles closely the specimens from Ungava Bay; although, the plant figured is somewhat smaller and narrower than ours.

The first set of specimens, to which I have referred, suggest in habit some of the forms of Microcladia Coulteri Harv. of our west coast. The fronds of the second set are less compressed and the ultimate branches are more attentuated so that, in some cases, they somewhat resemble forms of Ceramium rubrum. The arrangement of the cystocarps and tetraspores is the same in both sets of specimens. A small number of specimens similar to those now placed in the second set was collected on kelp, in six fathoms, at

Annanahtook Harbor by Kumlein, in October, 1877 and referred to by me to Delesseria rostrata J. G. Ag. A specimen was afterwards examined by Prof. Agardh who thought that it was Del. Baerii rather than Del. rostrata. Certainly the Ungava Bay Algae resembles the figure of Del. Baerii, in Kuelzing's Tabulae Phycologicae, drawn from a specimen in Herb. Sonder; and, also a specimen from Nova Zembla collected by Kjellman. Del. Baerii, first described from the Arctic Pacific region, extends as far as Spitzbergen but is not credited to Greenland or the eastern coast of America. Del. rostrata Ag. (based on Lyngbye's Gigartina purpurascens var. rostrata) is a Greenland form; and, apparently Ruprecht doubts whether it is distinct from his Del. Baerii.

By Agardh and Kjellman the two are kept distinct. Certainly one is not warranted in expressing a definite opinion from an examination of the figures of Del. rostrata, in Lyngbye and the Flora Danica, for they are too imperfect to be recognized with certainty. On the whole, I am inclined to regard all the specimens from Ungava Bay as forms of a single species, because there are several specimens which connect the two sets already described. So far as they can be divided into two sets, I should consider them to belong, in part, to Del. corymbosa and, in part, to Del. Baerii on the grounds stated above; and, the copious material from Ungava Bay warrants one in asking whether the two species in question are really distinct. A single specimen of what is here called Del. Baerii was found at Prince Edward's Island in a collection received from Mrs. A. L.

Davis.

Delesseria Jürgensii J. G. Ag.

Delesseria crassifobia Rupr.

These two characteristic Algae of the North Pacific were found in a collection from St. Paul's Island, Bering Sea, received from Prof. D. C. Eaton.

Rhodymenia palmata Grev. Ungava Bay. (Turner, 423 and 4870).

Large specimens of the typical form. Although this species has been recorded, in several works, as occurring in the North Pacific it is extremely doubtful whether such is the fact. All the Pacific specimens referred to this species, which I have examined, have proved, on microscopic examination, to belong to Callophyllis or to other genera than Rhodymenia.

Rhodophyllis veprecula J. G. Ag. (Fucus dichotomus Lepechim). Ungava Bay (Turner 447, 765, 809 and 4892). Annanahtook Harbor. "On rocks at low tide", Oct.1877 and Ovifak, Greenland, Aug.1878. (Kumlein).

Typical forms. The broadest specimens which I have ever seen were collected on the coast of Massachusetts.

Euthora cristata J. G. Ag. Ungava Bay (Turner) Annanahtook Harbor; on rocks at low tide (Kumlein).

Common as this species is on the New England Coast our Arctic collectors have brought home but few specimens.

The single, small example from Ungava Bay had cyctocarpic fruit. Most of the specimens of Kumlein belong to the narrow form and grew at low water stages. A specimen from 40 fathoms is eight inches long with broad, ultimate divisions.

Halosaccion ramentaceum J. G. Ag.

But few specimens of this common species were collected and none of them were at all equal to New England examples in luxuriance of growth. The specimens of Phyllophora membranifolia mentioned as collected by the Howgate Expedition in Bulletin No. 15, U. S. National Museum, are in reality narrow forms of H. ramentaceum.

Phyllophora interrupta J. G. Ag.

Five typical examples of this species were obtained at Point Barrow, but only a single specimen occurs in the collections from Ungava Bay.

Kallymenia Pennyi Harv.? Ungava Bay. (Turner nos. 451 and 4873).

Two small portions of a Kallymenia were among the mounted specimens and there were besides several much larger examples in the rough dried material, some of which bore cystocarpic fruit; so that there can be no doubt of the generic determination. None of the examples showed any trace of a stipe or point of attachment. Those more perfect were nearly a foot in diameter and were deeply and circularly lobed at the

circumference; the general outline being somewhat oval. Some of the fronds were perforated with a few holes; the largest of which were half an inch in diameter, but the majority of the perforations were much smaller. The holes were evidently not the result of erosion or decay, but similar to the holes which normally appear in the fronds of certain Algae. The color was the same as in the British specimens of K. reniformis, but the thickness of the fronds was somewhat greater than in that species; although, it should be added, that different, authentic specimens of K. reniformis vary considerably in thickness.

The present form certainly is not K. ornata P. and R. which has a different color, substance and habit, and, in spite of the existence of perforations in the frond, I think it must be referred either to K. reniformis or K. Pennyi. With regard to the last named species the descriptions are hardly sufficient to enable one to distinguish it with accuracy and the question arises whether it may not, after all, be a luxuriant, northern form of K.reniformis. K. Pennyi was originally found in Cumberland Gulf and, in all probability, the examples from Ungava Bay may be referred to the same species whether that is really distinct from K. reniformis or not. Specimens of Kallymenia are among the rarities of the Atlantic coast of America and the genus is known on the New England coast only from a single specimen collected near Boston by Mr. F. S. Collins. The Ungava Bay specimens are large, and, apparently belong to mature plants but, in the absence of a stipe and a set of younger examples, the determination may be questioned.

Ptilota pectinata Kjellman.

Under this name Kjellman in his Algae of the Arctic Sea includes the Ptilota serrata of Agardh and the P. plumosa var. serrata of Kützing as the type form of the species first described in Gunner's Flora Norvegica as Fucus pectinatus.

A large number of specimens were obtained in Ungava Bay which are identical with the common New England form. There were besides a small number of specimens which may be referred to the variety integerrima, Kjellman l. c. Pl. 15, f. I.

Callithammion americanum Harv. Ungava Bay (Turner, Nos. 449, 770 and 820.

Callithamnion Pylaisaei Mont. Ungava Bay. (Turner). Cumberland Gulf. (Kumlein).

Callithamnion (Antithamnion) boreale Kjellman var. corallina Kjellman?

A single specimen obtained at Ungava Bay may, perhaps, be referred to this species, but the material was not sufficient to enable me to speak with confidence.

Rhodochorton Rothii Naeg.

In the account of the Algae of the Howgate Expedition this species is reported from Cumberland Gulf,

but as the specimen was sterile the determination was, necessarily, doubtful.

Diploderma miniatum Kjellman.

The genus Diploderma of Kjellman includes the species of Porphyra whose fronds consist of a double layer of cells. Among the rough dried material from Ungava Bay was a large specimen which can, with very little doubt, be referred to the present species. The Algae of this genus are, naturally, much injured by the process of resoaking but, in spite of the unsatisfactory condition of the specimens when mounted, after that process, a microscopic examination showed that the measurements agreed with those of Porphyra miniata.

FUCACEAE

Fucus sp.?

A few specimens of Fucus were obtained at Ungava Bay but they were all sterile and otherwise in too unsatisfactory a condition to be determined.

PHAEOSPOREAE

Laminaria longicruris De la Pye.

A single, small specimen, from Ungava Bay, with a fragment of another unrecognizable species of the genus, together with an imperfect alaria.

Agarum Turneri Post. and Rupr. Ungava Bay.

Several rough dried specimens.

Chorda filum Stacht. Ungava Bay. (Turner No.485).

Desmarestia aculeata Lamour. Ungava Bay. (Turner. Nos. 507, 535, 4870 and 4872).

Chordaria flagelliformis Müll. Ungava Bay. (Turner. Nos. 500 and 4870). Also collected by the Howgate Expedition.

Ralfsia densta J. G. Ag. Ungava Bay.

A single, fine specimen, four inches in diameter.

Dictyosiphon foeniculaceus Grev. var. flaccidus Aresch.

Dictyosiphon hippuroides Aresch.?

The species of Dictyosiphon are, at the best, difficult of determination and of the material obtained from Ungava Bay it is impossible to speak with certainty, excepting that some of the few examples may, without doubt, be named D foeniculaceus. Number 464 is probably the variety flaccidus; and, number 475 may be referred, with considerable doubt, to D hippuroides. Without a larger set of specimens one could not venture a certainty of determination.

Phloeospora tortilis Aresch. Kikkerton Islands. Growing on small stones; July 1878. Abundant. (Kumlein).

This is an interesting addition to our Arctic

Algae. The species is said, by Kjellman, to have been found at Neuhernhut, Greenland. It may be expected to occur in the Gulf of St. Lawrence and perhaps in New England, but it has hitherto escaped the notice of our algologists.

Chaetopteris plumosa Kuetz. Kikkerton Islands. July 1878. "Rarely found on shore and then mostly on kelp. In nine fathoms, head of Cumberland Gulf; from a crack in the ice, Feb. 24, 1878". (Kumlein).

Sphacelaria arctica Harv. Cumberland Gulf. (Kumlein).

Ectocarpus litoralis Harv.

All the Ectocarpi obtained from Ungava Bay, as well as those procured by the Howgate Expedition belong to the subgenus Pylaiella and are to be included under Kjellman's Pyl. litoralis. Among the Algae of the Howgate Expedition and under the name of Ect Farlowii is a form called var. robustus of Ect. litoralis in the marine Algae of New England; and, a specimen, in poor condition, which may possibly be placed in Ect. Landsburgii Harvey.

CHLOROSPOREAE

Cladophora arcta Harv.
Kikkerton Islands. Gulf of Cumberland. "Conspicuously abundant, aspecially in sandy places". (Kumlein).

Cladophora glaucescens Harv.

Ungava Bay. (Turner).

Cladophora gracilis Kuetz. ?

Ungava Bay. Three specimens, nos. 790, 798 and 801, appear to belong to this species but I am by no means certain.

Ulothrix flacca Thuret.

Annanactook Harbour. (Kumlein).

Monostoma Blythii Wittrock.

Ungava Bay. (Turner). A few, fine specimens undoubtedly belonging to this species.

- - - - - - - - - - - - - - - - - -

McGILL UNIVERSITY LIBRARY
ORBO
T853
UNACC.